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Trophic level worksheet

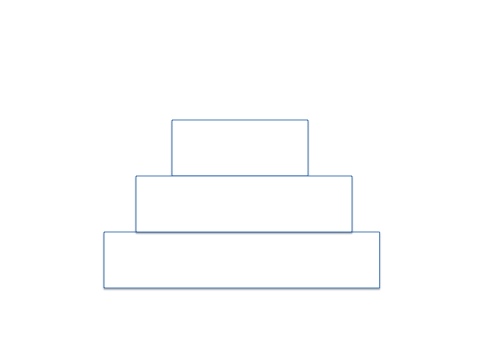
Life or Death in the Food Chain?

A small group of people are stranded on a barren desert island. They have 500 bushels of wheat and one cow. What should they do to survive for the longest length of time?

1. Eat the cow and then eat the wheat
2. Drink the cow’s milk, eat the cow, and then eat the wheat
3. Don’t feed the cow, drink the cow’s milk, eat the cow when milk production ceases, and then eat the wheat
4. Feed the wheat to the cow and drink the milk
5. Feed the wheat to the cow, drink the milk, and then eat the cow
6. Eat the wheat and then eat the cow

1. In groups, debate about which choice would ensure the longest survival. Think about what you know about food webs and food chains. Write your choice and your reasoning on your poster paper. You may write down your thoughts here:

2. Watch the video and answer the following questions:

* What is the 10% rule?
* Where do the wheat, cow, and humans fit in this trophic pyramid? In other words, which trophic level does each organism belong to?
* If the 500 bushels of wheat contain 1,000,000 calories, how much of that energy would be available to humans if the cow ate the wheat and then the people ate the cow? Label the calories per trophic level on the pyramid above.

3. Based on the video and class discussions, reevaluate your choice for #1. In groups, debate about which choice you think would allow the people to survive the longest. Write your choice along with your rationale on the poster paper. Make sure to use evidence from class discussions and the video in your answer. Write your ideas below.

4. Create an energy pyramid containing at least 4 organisms. Label the producers, consumers, etc. If level 2 of the pyramid contains 5000 calories, how many calories would all of the other levels contain? Label this on your pyramid.